

02/18/14    Agenda:

- Review Homework
  - Worksheet 2 - Interior & Exterior Angles
- Section 8.2 - Properties of Parallelograms
- Homework
  - Worksheet 3 - Properties of Parallelograms

## Warm Up - Homework Out!

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On a Regular Polygon: Given ....., find the number of sides:

1 exterior angle =  $24^\circ$

$$n = 15$$



1 interior angle =  $170^\circ$

$$\frac{360}{24} = 15 \text{ SIDES}$$

$$n = 36$$

sum of interior angles =  $4860^\circ$

$$\frac{360}{10} = 36 \text{ SIDES}$$

$$\frac{(n-2) \cdot 180 = 4860}{180} \quad \frac{4860}{180}$$

$$n-2 = 27$$

$$n = 29 \text{ SIDES}$$

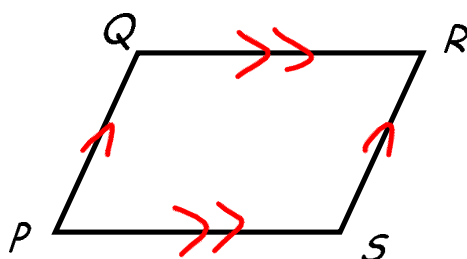
## Section 8.2 - Properties of Parallelograms

### Target 8C

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**Goal:** Use the properties of Parallelograms to find missing information (sides, angles, & diagonals).

**Definition:** A parallelogram is a quadrilateral with BOTH pairs of opposite sides parallel.



WRITTEN AS

$\square PQRS$

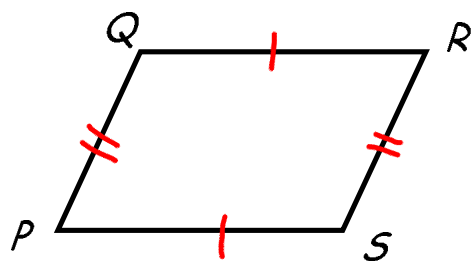
In parallelogram PQRS,  $\overline{PQ} \parallel \overline{RS}$  and  $\overline{QR} \parallel \overline{PS}$  by definition.

## Section 8.2 - Properties of Parallelograms

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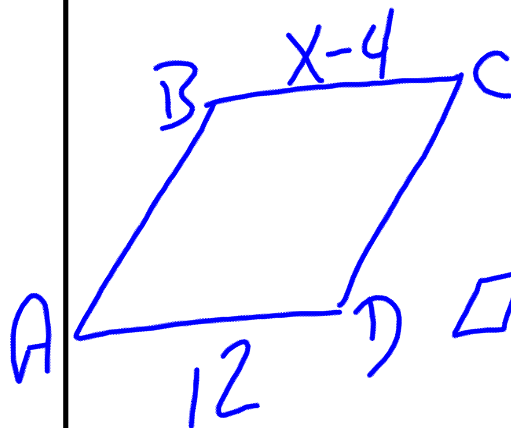
Properties: 1. Opposite sides are congruent.



IF PQRS IS  
A  $\square$ , THEN

$$\overline{QR} \cong \overline{PS}$$

$$\overline{PQ} \cong \overline{RS}$$



$\square ABCD$ , FIND X

$$\overline{AD} \cong \overline{BC}$$

$$12 = x - 4$$

$$16 = x$$

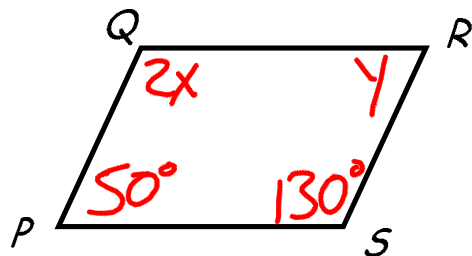
## Section 8.2 - Properties of Parallelograms

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Properties: 2. Opposite angles are congruent.

$$x = 65^\circ$$
$$y = 50^\circ$$



IF PQRS IS  
A  $\square$ , THEN

$$\angle Q \cong \angle S$$

$$\angle P \cong \angle R$$

## Section 8.2 - Properties of Parallelograms

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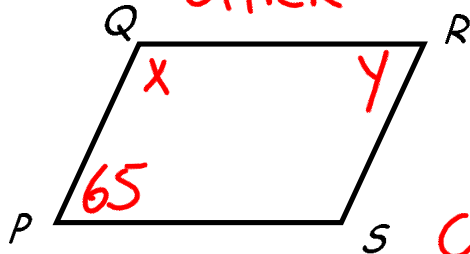
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Properties:

3. Consecutive angles are supplementary.

NEXT TO EACH  
OTHER

$$x = 115^\circ$$
$$y = 65^\circ$$



IF PQRS IS  
A  $\square$ , THEN

CONSECUTIVE ANGLES  
ARE SUPPLEMENTARY

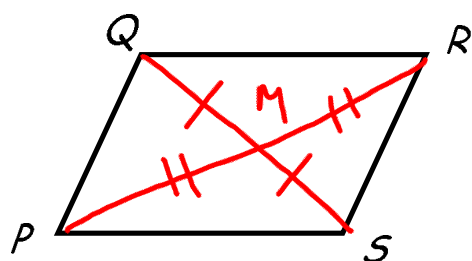
$$\angle P + \angle Q = 180^\circ$$
$$\angle Q + \angle R = 180^\circ$$
$$\angle R + \angle S = 180^\circ$$
$$\angle S + \angle P = 180^\circ$$

## Section 8.2 - Properties of Parallelograms

### Target 8C

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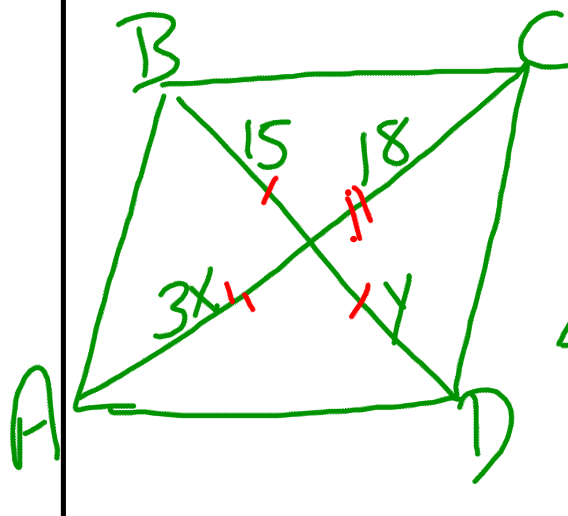
Properties: 4. The diagonals bisect each other.



IF PQRS IS  
A  $\square$ , THEN

$$\overline{QM} \cong \overline{MS}$$

$$\overline{PM} \cong \overline{MR}$$



$\square ABCD$

$$y = 15$$

$$x = 6$$

## Section 8.2 - Properties of Parallelograms

### Target 8C

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### 3x5 Summary:

#### Parallelogram:

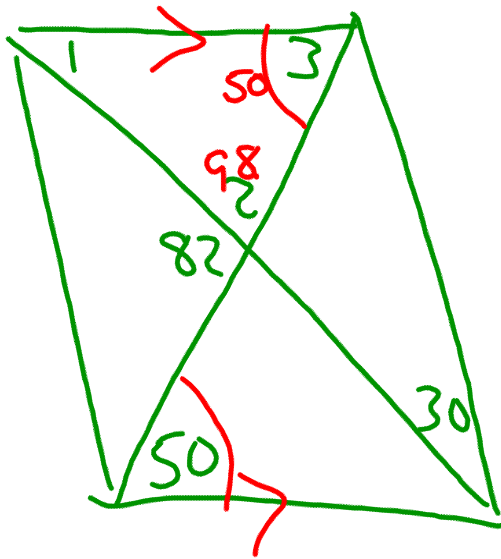
Quadrilateral with BOTH pairs of opposite sides parallel.

- Opposite sides are congruent.
- Opposite angles are congruent.
- Consecutive angles are supplementary.
- The diagonals bisect each other.





#8



$$\begin{aligned}\angle 1 &= 32^\circ \\ \angle 2 &= 98^\circ \\ \angle 3 &= 50^\circ\end{aligned}$$